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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,140	08/18/2003	J. Richard Aylward	02103-519002/S93 US1	3288

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EXAMINER

KURR, JASON RICHARD

ART UNIT	PAPER NUMBER
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2614

NOTIFICATION DATE	DELIVERY MODE
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12/27/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/643,140	AYLWARD ET AL.	
	Examiner	Art Unit	
	JASON R. KURR	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6,42 and 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,42 and 46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6, 42 and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Thigpen (US 7343020 B2).

With respect to claim 1, Thigpen discloses an audio system including a plurality of channels intended to be radiated in a predetermined positional relationship to a listener (col.1 ln.60-63), comprising: a listening area (fig.1 #10) comprising a plurality of listening spaces (fig.1 #22,24); a first directional local audio device (fig.1 #40, “driver side set of speakers”) comprising at least two radiating elements (fig.1 #40 “left and right speakers around driver”) radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions (col.7 ln.4-12), the directional audio device being positioned in a first of said listening spaces, close to a head of the listener for radiating first sound waves corresponding to a first of said channels (col.3 ln.31-39); and a second nonlocal audio device (fig.4 #142), positioned inside said listening area and outside said listening spaces, distant from said

first of said listening spaces, for radiating sound waves corresponding to said first of said channels (col.6 ln.14-16). It is implied that destructive interference resultant from two separate sound sources (#40) would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others. Thigpen discloses wherein the speakers #40 may be ultrasonic transducers. It is implied that ultrasonic transducers function through destructive interference at the head of a listener. It is also well known that the non-local audio device #142 of Thigpen would propagate the low frequency band of a combination of both right and left channels.

With respect to claim 6, Thigpen discloses an audio system in accordance with claim 1, wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment (fig.1).

With respect to claim 42, Thigpen discloses an audio system including a plurality of channels intended to be radiated in a predetermined positional relationship to a listener (col.1 ln.60-63), comprising: a listening area (fig.1 #10) comprising a plurality of listening spaces (fig.1 #22,24); a first local directional audio device (fig.1 #40, "driver side set of speakers") comprising at least two radiating elements (fig.1 #40 "left and right speakers around driver") radiating sound waves that destructively interfere more in some directions than the sound waves destructively interfere in other directions (col.7 ln.4-12), the directional audio device at a fixed location in a first of said listening spaces, close to a head of the listener for radiating first sound waves corresponding to a first of

said channels (col.3 ln.31-39); and a second nonlocal audio device (fig.4 #142), positioned inside said listening area and outside said first of said listening spaces, distant from said first of said listening spaces, for radiating sound waves corresponding to said first of said channels (col.6 ln.14-16). It is implied that destructive interference resultant from two separate sound sources (#40) would not be equal at all points in space, therefore the sound waves would destructively interfere more in some directions when compared to others. Thigpen discloses wherein the speakers #40 may be ultrasonic transducers. It is implied that ultrasonic transducers function through destructive interference at the head of a listener. It is also well known that the non-local audio device #142 of Thigpen would propagate the low frequency band of a combination of both right and left channels.

With respect to claim 46, Thigpen discloses an audio system in accordance with claim 42, wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment (fig.1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thigpen (US 7343020 B2) in view of Hooley et al (US 7577260 B1).

With respect to claim 2, Thigpen discloses an audio system in accordance with claim 1, however does not disclose expressly wherein said directional audio devices comprise a plurality of acoustic drivers, wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space. Thigpen discloses wherein the speakers #40 may be of the directional ultrasonic type (col.7 ln.4-12).

Hooley discloses a directional ultrasonic transducer (fig.1 #105) that comprises a plurality of acoustic drivers (fig.1 #104), wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space (col.24 ln.4-31). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the ultrasonic transducer of Hooley as the speakers #40 of Thigpen. The motivation for doing so would have been to use a highly directional transducer to generate a spatial sound field within the cabin of the vehicle. This would provide spatial depth to the reproduced sound signals.

Response to Arguments

Applicant's arguments, see Remarks, filed November 10, 2010, with respect to the rejection(s) of claim(s) 1 and 42 under Scofield in view of Arai have been fully

considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Thigpen and Hooley.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Thigpen (US 5901235) discloses an enhanced planar transducer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON R. KURR whose telephone number is (571)272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason R Kurr/

Examiner, Art Unit 2614

/VIVIAN CHIN/

Supervisory Patent Examiner, Art Unit 2614